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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,507	07/15/2004	Masayoshi Handa	1422-0635PUSI	8270
2292 7590 10/03/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER BERNSHTEYN, MICHAEL	
			ART UNIT 1713	PAPER NUMBER
			NOTIFICATION DATE 10/03/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

## Office Action Summary

Application No.

10/501,507

Applicant(s)

HANDA ET AL.

Examiner

Michael Bernshteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 09/22/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 11, 2006 has been entered.
2. This Office Action follows a response filed on February 16, 2006. Claim 1 has been amended; claim 8 has been cancelled; no claims have been added.
3. In view of the amendment(s), Declaration under 37 C.F.R. 1.132, and remarks, filed on November 16, 2006 and February 16, 2007, the rejection(s) of claim(s) 1-4 and 6-8 under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya (U. S. Patent Application Publication 2002/0034911) in view of Nosokawa et al. (EP 0 257 951) and the rejection of claim 5 over Tsuchiya'911 have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nosokawa et al. (EP 0 889 063 A1) and Shimomura et al. (U. S. Patent 4,959,060).
4. Claims 1-7 are active.

### ***Claim Rejections - 35 USC § 103***

5. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

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6. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Nosokawa et al. (EP 0 889 063 A1) in view of Shimomura et al. (U. S. Patent 4,959,060).

With regard to the limitation of instant claims 1 and 4, Nosokawa discloses synthesis of a super absorbent resin composition comprising the following components (A), (B) and (C), or components (A) and (D): (A) a super absorbent resin; (B) a metal compound containing at least one metal A selected from the group consisting of titanium and zirconium; (C) a chelating agent, and (D) a coordination compound in which component (C) is coordinated with metal (A) (abstract).

Nosokawa discloses that after the completion of the polymerization of acrylic acid in the presence of ethyl cellulose as a dispersant, aqueous solution of sodium hydroxide, ion-exchanged water and potassium persulfate, the super absorbent resin was obtained (Synthesis examples 1-7, page 9, line 44 through page 11, line 15). Then the super absorbent resin (A) was put in a twin-cylinder kneader, and the metal compound (B) and the chelating agent (C) were added thereto in the adjusted amounts either in a powder form or by spraying an aqueous solution thereof. The mixture was thoroughly stirred to mix to obtain a super absorbent resin composition (Table 2, Examples 1-11, page 11, line 15 through page 12).

Nosokawa discloses preferred examples of the chelating agent as component (C) are **ethylenediaminetetraacetic acid (EDTA), tripolyphosphoric acid, polyphosphoric acid**, etc. or salts thereof (e.g., Na, K or ammonium salt) (page 5, line 57 through page 7, line 46). The chelating agent as component (C) is preferably used in

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an amount of **0.01 to 5 parts by weight**, particularly 0.05 to 2 parts by weight, per 100 parts by weight of super absorbent resin as component (A), which is within the claimed range (page 7, lines 50-51).

Component (C) may be coordinated with metal A, and the compound (metal chelate compound) in which component (C) is coordinated with metal A is referred to component (D) (pages 7-8, the bridging paragraph).

Nosokawa discloses that if desired, the super absorbent resin composition can contain various additives, such as **reducing agent**, etc. which can be added in a total amount of not more than 50% by weight based on the total weight of super absorbent resin composition (page 8, lines 10-13).

With regard to the limitation of instant claim 1, step c), Nosokawa does not disclose adding a reducing or an oxidizing agent to the polymerized water-containing gelated product in an amount of 0.001 to 6 parts by weight based on 100 parts by weight of the  $\alpha,\beta$ -unsaturated carboxylic acid.

Shimomura discloses that a body fluid-absorbing article such as, for example, a disposable diaper is provided with at least one absorbent member comprising 50 to 99% by weight of a fibrous material and 50 to 1% by weight of an absorbent polymer, which absorbent member contains at least one compound (A) selected from the group consisting of sulfur-containing **reducing agents**, antioxidants, and **oxidizing agents**. By the action of the compound (A), the swelled gel of the absorbent polymer formed in consequence of absorption of body fluid is prevented from being deteriorated or decomposed by aging (abstract).

With regard to the limitation of instant claim 1, step c), Shimomura discloses several examples of the method for the incorporation of the compound (A) in the body fluid-absorbent member, for example, (3) method which causes the compound (A) to be contained in layers in the absorbent member by spraying a solution or dispersion of the compound (A) on the absorbent polymer then drying the wet absorbent polymer, when necessary, thereby producing a composite having the compound (A) deposited on the absorbent polymer, and then having this composite interposed between at least two sheets of the fibrous material, etc. (col. 4, line 35 through col. 5, line 27).

These compounds (A) is desired to be contained in the body fluid absorbent member in an amount in the range of **0.05 to 20 parts by weight**, preferably **0.1 to 10 parts by weight**, based on 100 parts by weight of the absorbent polymer, which is within the claimed range (col. 3, lines 48-52).

Both references are analogous art because they are from the same field of endeavor concerning water-absorbent resin compositions for body fluid-absorbing articles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a reducing agent or an oxidizing agent to the polymerized water-containing gelated product in the adjusted amount as taught by Shimomura in Nosokawa's process for preparing a water-absorbent resin with reasonable expectation of success. Such body fluid-absorbing article can be used efficiently as disposable diaper, sanitary napkin, or sweat pad because the absorbent polymer-containing absorbent member neither permits gradual deterioration of the

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ability thereof to hold the absorbed body fluid nor suffers from sideways leakage of the absorbed body fluid (US'060, col. 5, lines 58-64), and thus to arrive at the subject matter of instant claim 1, step c).

With regard to the limitations of instant claims 1, step d) and 5, the combined teaching of Nosokawa and Shimomura does not disclose that yielding a polymerized water-absorbent resin having greater discoloration resistance than a polymerized water-absorbent resin having no reducing or oxidizing agent and no metal chelating agent added thereto, and that the water-absorbent resin has Yellow Index of 12 or less, after allowing to stand at 50°C and 90% relative humidity for 20 days.

However, in view of substantially identical process and ingredients for preparing a water-absorbent resin composition between Nosokawa and Shimomura, and instant claims, it is the examiner's position that the final product of Nosokawa and Shimomura's process for preparing the water-absorbent resin produced the water-absorbent composition, which possesses these properties. Since the USPTO does not have equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise. ***In re Best*** (CCPA 1980). 195 USPQ 430, (CCPA 1977).

With regard to the limitation of instant claims 2 and 3, Nosokawa does not disclose that the reducing agent is a sulfite, a hydrogensulfite, a dithionite or a pyrosulfite, and the oxidizing agent is hydrogen peroxide.

With regard to the limitation of instant claim 2, Shimomura discloses that examples of the **sulfur-containing reducing agent** include **sulfides** such as ammonium sulfide, sodium sulfide, potassium sulfide, and lithium sulfide; hydrosulfides

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such as sodium hydrosulfide; sulfur oxide compounds such as thiosulfates represented by sodium thiosulfate and potassium thiosulfate, sulfurous acid, **sulfites** represented by sodium sulfite and potassium sulfite, **hydrogen sulfites** represented by sodium hydrogen sulfite and potassium hydrogen sulfite, and **dithionites** represented by hydrosulfite, etc. (col. 3, lines 5-17).

With regard to the limitation of instant claim 3, Shimomura discloses that examples of the oxidizing agent to be used include peroxides such as **hydrogen peroxide**, sodium peroxide, and barium peroxide; halogens such as fluorine, chlorine, bromine, and iodine, etc. (col. 3, lines 28-41).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a reducing agent such as a sulfite, a hydrogen sulfite, a dithionite, etc. or an oxidizing agent, such as **hydrogen peroxide** as taught by Shimomura in the adjusted amount in Nosokawa's process for preparing a water-absorbent resin, which are highly effective in preventing the swelled gel of the absorbent polymer formed by absorption of body fluid from being deteriorated with time (US'060, col. 3, lines 42-47), and thus to arrive at the subject matter of instant claims 2 and 3.

With regard to the limitation of instant claims 6 and 7, Nosokawa discloses that the super absorbent resin composition is particularly useful as a water-absorbing material in sanitary articles, such as absorbent articles, e.g., disposable diapers and sanitary napkins. Such absorbent articles comprise a **water-permeable top sheet**, a **water-impermeable back sheet** and an absorbent member interposed between said



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top sheet and said back sheet. The absorbent member can be made up of fluff pulp, i.e., ground wood pulp. The super absorbent resin composition is used in combination with the **fluff pulp** either as a mixture with the fluff pulp or in the form of an independent layer on specific areas of a fluff pulp layer. The absorbent member can be prepared by heat treating a mixture of a thermoplastic resin, fluff pulp, and the super absorbent resin composition (page 8, lines 41-48).

Thus, the combination of Nosokawa and Shimomura renders claims 1-7 *prima facie* obvious in view of absent of unexpected results commensurate in scope of claims.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn  
Examiner  
Art Unit 1713

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